(9.) (14 points) Suppose you decide to weave baskets and sell them for a living. Let $b = f(t)$ be the number of baskets you can weave in t hours, and let $d = g(b)$ be the number of dollars you can get for b baskets.

(a) Let $h(t) = g(f(t))$. Describe the function h in words.

The expression $h(t)$ is the number of dollars you can get after t hours of work weaving baskets.

(b) What are the units of $h'(t)$?

The units of $h'(t)$ are dollars per hour.

(c) Describe $f^{-1}(10)$ in words.

The expression $f^{-1}(10)$ represents the number of hours it takes you to weave 10 baskets.

(d) What are the units of $(f^{-1})'(b)$?

The units of $(f^{-1})'(b)$ are hours per basket.

(e) With any luck, you'll get better at basket-weaving as time passes – it will take you less time to weave each basket. State this in terms of the concavity of f. Explain your reasoning.

Since it takes you less and less time to weave each basket, you are weaving a greater and greater number of baskets per hour. This means that f' is increasing, so f is concave up.